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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,711	03/05/2002	Sadaaki Mori	4970/0K363	7464

7590 03/22/2004

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EXAMINER

LUM, LEE S

ART UNIT	PAPER NUMBER
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3611

DATE MAILED: 03/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/091,711

Applicant(s)

MORI ET AL.

Examiner

Lee Lum

Art Unit

3611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 3611

DETAILED ACTION

1. An Amendment was filed 1/15/04. A Supplemental Amendment was filed 2/23/04.

An Interview was conducted on 2/11/04, and a copy of the discussion is attached.

2. The Abstract is objected to because in line 1, "comprises" should be replaced by a non-legal term.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4A. **Claims 1 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Henry et al 6373211 in view of Coles et al 6124688.

Henry discloses an electric power steering apparatus (fig 6) comprising
Torque sensor 73,
Steering assist motor 64 driven to rotate based on the detected torque (col 8, lines 20-27),
Drive circuit (unidentified) for the motor,
Judgement unit 62 including
 sensing the rotational speed of the motor, via speed circuit 16, and,
 judging whether the speed is within a predetermined range (col 8, lines 20-27),
and,
Instruction unit 62 for supplying field-weakening control of the motor to the drive circuit, when it is judged that the speed of the motor is within the range (same, and col 11, lines 11-20).

Art Unit: 3611

The reference discloses a brushless motor with rotor and magnets, but does not disclose magnets embedded in recesses in the rotor core. Coles shows recessed magnets 27 in rotor core 26 in fig 12, and col 6, lines 40-41. While Henry's configuration is clearly functionally equivalent, it would have been obvious to one with ordinary skill in the art at the time the invention was made to include an alternate arrangement, as shown in Coles, to provide the same functions for different applications.

4B. Re **Claims 2 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Henry in view of Coles, and in further view of prior art disclosed in the present application.

Coles shows the rotor 26 as comprising recessed magnets 27, but does not show the rotor core as including laminated electromagnetic plates. In the present application, the spec, on p 2, middle paragraph, provides this feature as prior art, as does fig 1. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include this feature, as shown in prior art, as a functionally equivalent rotor configuration, having a compact yet effective structure.

5. **Claims 3-8 and 11-16** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Prior art does not disclose an electric power steering apparatus comprising, *inter alia*, a brushless motor controlled by controlling a phase of a motor current which is controlled with a PWM-controlled pulse signal,

a judgement unit for determining whether the speed of the motor is within a predetermined range, and

the range is where a root-mean-square value of an alternating signal corresponding to the pulse signal is between 90 and 100 of a maximum root-mean-square value, and where phase control is not performed.

6. RESPONSE TO REMARKS

Examiner reiterates her rejections as provided above.

Re Applicant's arguments on pp 9-10 re Coles, Examiner rebuts that Coles is properly combined with Henry because the reference clearly teaches "magnets (27) fixed in recesses (unidentified) provided in a rotor core (26)".

This issue was raised in the Interview conducted on 2/11/04, which included Examiner's supervisor, Ms. Morris. Ms. Morris maintained this explanation, and Mr. Lerch agreed.

7. An IDS was filed 11/13/03, in which two of the three foreign patents were not considered because English translations, of at least the Abstracts, were not provided.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

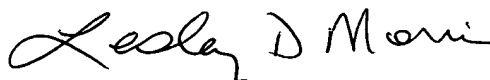
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Communication with the Examiner and USPTO

Any inquiry concerning this communication should be directed to Ms. Lum at (703) 305-0232, M-F, 9-6. Our fax number is (703) 872-9306. Any inquiry of a general nature, or relating to the status of this application/proceeding, should be directed to Customer Assistance at (703) 306-5771.

Ms. Lee S. Lum
Examiner
3/15/04




LESLEY D. MORRIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Interview Summary

Application No.

10/091,711

Applicant(s)

MORI ET AL.

Examiner

Lee Lum

Art Unit

3611

All participants (applicant, applicant's representative, PTO personnel):

(1) L Lum- examiner.

(3) J Lerch - atty.

(2) L Morris - SPE.

(4) _____.

Date of Interview: 11 February 2004.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☒ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
If Yes, brief description: _____.

Claim(s) discussed: 1 and 9.

Identification of prior art discussed: Coles.

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: see Addendum.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.



LESLEY D. MORRIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

Addendum to Interview Summary

Mr. Lerch argued that Coles did not disclose "a rotor with magnets in a plurality of recesses in a rotor core", as recited in Claims 1 and 9. Ms. Morris maintained that the reference, in fact, disclosed this arrangement, as depicted in fig 12, with magnets 27 fitted into recesses (unidentified) in the rotor core 26. Mr. Lerch agreed with this interpretation, and would confer with his client.

Ms. Lee S. Lum
Examiner
2/11/04